

WHAT IS CLAIMED IS:

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1. An image change detecting apparatus for detecting generation of a fade change in image information containing a plurality of field images, the image change detecting apparatus comprising:
- 5 a dispersion value detecting device for detecting each of intra-field dispersion value in each field image;
- an average direct current level detecting device for detecting each of intra-field average direct current levels in each field image; and
- 10 a detecting device for detecting whether or not the fade change occurs based on a change of the detected intra-field dispersion value and a change of the detected intra-field average direct current level.
2. The image change detecting apparatus according to claim 1, wherein the detecting device detects that the fade change occurs in the plurality of the continuous field images when the detected intra-field dispersion value and the detected intra-field average direct current level change linearly altogether relevant to a plurality of the continuous field images.
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3. The image change detecting apparatus according to claim 1, wherein the detecting device detects that the fade change from the field images of single white color occurs in the plurality of the continuous field images when the detected intra-field dispersion value has a positive gradient and changes linearly, and when the detected intra-field
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average direct current level has a negative gradient and changes linearly,
relevant to the plurality of the continuous field images.

4. The image change detecting apparatus according to claim 2,
5 wherein the detecting device detects that the fade change from the field
images of single white color occurs in the plurality of the continuous
field images when the detected intra-field dispersion value has a
positive gradient and changes linearly, and when the detected intra-field
average direct current level has a negative gradient and changes linearly,
10 relevant to the plurality of the continuous field images.

5. The image change detecting apparatus according to claim 1,
wherein the detecting device detects that the fade change from the field
images of single black color occurs in the plurality of the continuous
15 field images relevant to the plurality of the continuous field images
when the detected intra-field dispersion value and the detected
intra-field average direct current level each have a positive gradient and
changes linearly.

20 6. The image change detecting apparatus according to claim 2,
wherein the detecting device detects that the fade change from the field
images of single black color occurs in the plurality of the continuous
field images relevant to the plurality of the continuous field images
when the detected intra-field dispersion value and the detected
25 intra-field average direct current level each have a positive gradient and
changes linearly.

7. An image encoding apparatus including an image change detecting apparatus for detecting generation of a fade change in image information containing a plurality of field images,

5 the image change detecting apparatus comprising:

a dispersion value detecting device for detecting each of intra-field dispersion value in each field image;

an average direct current level detecting device for detecting each of intra-field average direct current levels in each field image; and

10 a detecting device for detecting whether or not the fade change occurs based on a change of the detected intra-field dispersion value and a change of the detected intra-field average direct current level,

the image encoding apparatus further comprising:

15 an encoding device for changing an encoding parameter in encoding of the detected subsequent image information, thereby encoding the image, when it is detected that the fade change occurs.

8. The image encoding apparatus including an image change detecting apparatus for detecting generation of a fade change in image information containing a plurality of field images according to claim 5,
20 wherein the detecting device detects that the fade change occurs in the plurality of the continuous field images when the detected intra-field dispersion value and the detected intra-field average direct current level change linearly altogether relevant to a plurality of the continuous field
25 images.

9. The image encoding apparatus including an image change detecting apparatus for detecting generation of a fade change in image information containing a plurality of field images according to claim 7, wherein the detecting device detects that the fade change from the field
5 images of single white color occurs in the plurality of the continuous field images when the detected intra-field dispersion value has a positive gradient and changes linearly, and when the detected intra-field average direct current level has a negative gradient and changes linearly, relevant to the plurality of the continuous field images.

10. The image encoding apparatus including an image change detecting apparatus for detecting generation of a fade change in image information containing a plurality of field images according to claim 8, wherein the detecting device detects that the fade change from the field
15 images of single white color occurs in the plurality of the continuous field images when the detected intra-field dispersion value has a positive gradient and changes linearly, and when the detected intra-field average direct current level has a negative gradient and changes linearly, relevant to the plurality of the continuous field images.

11. The image encoding apparatus including an image change detecting apparatus for detecting generation of a fade change in image information containing a plurality of field images according to claim 7, wherein the detecting device detects that the fade change from the field
25 images of single black color occurs in the plurality of the continuous field images relevant to the plurality of the continuous field images

when the detected intra-field dispersion value and the detected intra-field average direct current level each have a positive gradient and changes linearly.

5 12. The image encoding apparatus including an image change detecting apparatus for detecting generation of a fade change in image information containing a plurality of field images according to claim 8,
10 wherein the detecting device detects that the fade change from the field images of single black color occurs in the plurality of the continuous field images relevant to the plurality of the continuous field images when the detected intra-field dispersion value and the detected intra-field average direct current level each have a positive gradient and changes linearly.

15 13. An image change detecting method for detecting an occurrence of a fade change in image information containing a plurality of field images, the image change detecting method comprising the processes of:

20 detecting each of the intra-field dispersion values in the each field image;

detecting each of the intra-field average direct current level in each field image; and

detecting an occurrence of the fade change based on a change of the detected intra-field dispersion value and a change of the detected
25 intra-field average direct current level.

14. The image change detecting method according to claim 13, wherein the process of detecting each of the intra-field dispersion values detects that the fade change occurs in a plurality of the continuous field images when the detected intra-field dispersion value and the detected intra-field average direct current level change linearly relevant to the plurality of the continuous field images.

15. An information recording medium in which an image change detecting program is readably recorded by a computer included in a image change detecting apparatus for detecting generation of a fade change in image information containing a plurality of field images, the image change detecting program causing the computer to function as:

a dispersion value detecting device for detecting each of the intra-field dispersion values in each field image;

an average direct current level detecting device for detecting each of the infra-field average direct current levels in each field image; and

a detecting device for detecting an occurrence of the fade change based on a change of the detected intra-field dispersion value and a change of the detected intra-field average direct current level.

16. The information recording medium according to claim 15, wherein the image change detecting program is readably recorded by the computer, the image change detecting program causing the computer to further function as:

the detecting device detects that the fade character-
ality of continuous field images when the d-
conversion value and the detected intra-field average c-
ange linearly altogether relevant to a plurality of th-
ges.

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$\frac{1}{\sqrt{\pi}} \int_{-\infty}^{\infty} f(x) e^{-x^2} dx = \frac{1}{\sqrt{\pi}}$